National Institute of Environmental Health Sciences

Fine-scale spatial temperature patterns across a UK conurbation

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Abstract:

The public health implications of a warming urban environment mean that appropriate action by planners, designers and health workers will be necessary to minimise risk under future climate scenarios. Data at an appropriate spatial scale are required by user groups in order to identify key areas of vulnerability. Thermal mapping of a UK urban conurbation was carried out during the summers of 2007 and 2008 with the aim of providing high spatial resolution temperature data. The air temperature results showed an average daytime (night time) urban-rural thermal contrast of 3A degrees C (5A degrees C) on summer days (nights) with ideal urban heat island (UHI) conditions. The intensity of the daytime surface temperature heat island was found to exceed 10A degrees C. The measured data were used to derive an empirical model of spatial temperature patterns based upon characteristics of land use, distance from urban centre and building geometry. This model can be used to provide sub-kilometre resolution temperature data which are required by decision makers and can provide a mechanism for downscaling climate model output.

Source: http://dx.doi.org/10.1007/s10584-011-0021-0

Resource Description

Early Warning System: ☑

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☑

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Meteorological Factors, Temperature

Temperature: Extreme Heat, Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Rural, Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : United Kingdom

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction, Methodology

Resource Type: ☑

format or standard characteristic of resource

Research Article, Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content